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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/800,607      | 03/15/2004  | Takuya Tsukagoshi    | 890050.469          | 1809             |

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SEED INTELLECTUAL PROPERTY LAW GROUP PLLC  
701 FIFTH AVE  
SUITE 6300  
SEATTLE, WA 98104-7092

EXAMINER

BOUTSIKARIS, LEONIDAS

ART UNIT PAPER NUMBER

2872

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/800,607             | TSUKAGOSHI, TAKUYA  |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Leo Boutsikaris        | 2872                |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/8/06</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/8/2006 has been entered.

### ***Claim Objections***

Claims 1-5 are objected to because of the following informalities:

In claims 1, 3 and 4, it is suggested that the phrase “wherein said light beam for servo control is projected during a holographic recording and reproducing process” is changed to “wherein said light beam for servo control is projected during the holographic recording and reproducing process” for better clarity.

Claims 2, 5 inherit the deficiency of claims 1, 4 from which they depend.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horimai (US 2003/0063342) in view of Amble (US 2004/0001400).

Regarding claim 1, Horimai discloses a system and a method for recording and reproducing optical information in and from a holographic storage medium, wherein the holographic recording medium comprises a recording layer 3 (Fig. 4) in which data is recorded as phase information by producing the interference of an object light beam 51L and a reference beam 52L (Fig. 7) in the recording layer 3 ([0146]), and an optical modulation pattern 6 periodically formed in a direction of a track on a surface located on the opposite side of the recording layer 3 as viewed in the direction of the signal beam and reference beam incidence of the recording layer, wherein a separate light beam is emitted from the light source 25 to serve as a beam for servo control, such that said servo beam is focused onto the pattern 6 in order to produce clock servo signals ([0135]-[0137]).

However, Horimai does not teach that a first light source is used to emit the recording beams and a second light source is used to emit the servo beam. Amble discloses an optical data storage system wherein one wavelength e.g., 658 nm is used to read/write data and a separate wavelength e.g., 780 nm is used to illuminate the medium with a servo control beam (Figs. 3D, 3E, [0066]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use separate wavelengths for the read/write and servo control beams in Horimai's optical storage system, as taught by Amble, since various types of optical storage

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media, e.g., CDs, DVDs, require read/write beams of different optical wavelengths (see also [0052]-[0053] in Amble).

Finally, Horimai does not teach that the servo beam is projected during the recording and reproducing of the holographic data. As described above, Amble discloses an optical storage system where data is recorded/written and reproduced/read by focusing a write beam 102 on a format hologram medium so that local polymerization occurs within the format hologram medium corresponding to data points ([0066]). Reproduction/reading of the data comprises focusing a read beam onto the format hologram medium and reflecting the light off the local data points. In the above optical data system, Amble teaches that a servo beam is projected onto the medium during the writing and readout process (last sentence in [0067]). In other words, Amble provides the explicit teaching that a servo beam is used during the data recording/writing process and during the reproducing/read out process. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a servo beam during the recording and reproducing of the holographic data in Horimai's optical data storage system, as taught by Amble, for maintaining accuracy during the write/readout process (see [0003], claim 1 in Amble).

Regarding claim 2, the servo beam is focused onto the pattern area 6 by lens 12. Furthermore, it is inherent that the beam's spot diameter is smaller than a period of the pattern (i.e., smaller than the pattern itself) since the servo beam is used for identifying the address of the specific location (see second to last line in [0133]), hence the beam cannot overlap several data locations.

Regarding claim 3, each pattern 6 is disposed adjacent to a data recording location, which implies that when successive data bits are sequentially recorded in adjacent locations of the recording layer, the track has shifted by an integer multiple of the period of the pattern.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horimai (US 2003/0063342) in view of Amble (US 2004/0001400) and further in view of Kono (JP 2001-291242).

Horimai in view of Amble discloses all the limitations of said claims except for teaching the removal of noise incurred due to the passage of light through the optical modulation pattern, wherein a predetermined test pattern is recorded, it is then reproduced and its noise "signature" is subsequently removed from noisy image reproductions. Kono discloses a method for reducing the influence of noise caused by an optical recording medium, wherein a test light for noise cancellation is used to record a pattern, and the difference between the reproduced pattern and other reproduced light is used to reduce the noise present in the reproduced images (see Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method taught by Kono to reduce the noise present in the reproduced data in Horimai's system, for achieving better signal-to-noise ratio during reading of the optical information stored in the holographic medium.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible

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harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 of copending Application No. 10/827,152 in view of Amble (US 2004/0001400). Although the conflicting claims are not identical, they are not patentably distinct from each other because said claims of the '152 application are drawn to a holographic optical storage system wherein a periodic pattern is formed adjacent to the holographic recording layer for use in conjunction with a servo control beam, and it would have been obvious to use a separate wavelength for the read/write and servo control beams, as taught by Amble, since many applications require data storage systems with read/write beams of different wavelengths.

This is a provisional obviousness-type double patenting rejection.

### ***Response to Applicant's Arguments***

Applicant's arguments filed on 6/8/06 have been fully considered but they are not persuasive.

Applicant's main argument is that in Amble, the servo beam is used during writing and readout of the optical medium 82 and not during the formation of the format hologram (recorded

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by the interference of the signal beam and the reference beam). Therefore, Applicant concludes that Amble does not teach the projecting of a servo beam during holographic recording and reproducing. The examiner does not disagree with the above. However, it is noted that Amble is cited for the teaching (lacking in Horimai) that the servo beam is used during the recording and reproducing of *data* stored in the optical medium. Horimai provides the teaching that said data is holographic (i.e. recorded by the interference between an object beam and a reference beam). The fact that the data in Amble's data storage system is not holographic in nature (local variations in a formatted hologram medium instead) is irrelevant in the 103 rejection combining Horimai in view of Amble. Again, Amble is cited for the teaching of the use of a servo beam during the recording/reproducing of data and *not* for the type of recorded data. One of ordinary skill in the art would look into Amble for the teaching of using a servo beam while the holographic data is recorded and subsequently read in Horimai's system, for the additional accuracy and error control provided by the servo beam.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Leo Boutsikaris whose telephone number is 571-272-2308. The examiner can normally be reached on M-F, 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leo Boutsikaris, Ph.D., J.D.  
Primary Patent Examiner, AU 2872  
June 16, 2006



**LEONIDAS BOUTSIKARIS**  
**PRIMARY EXAMINER**